

1631

PATENT
Attorney Docket No.: A-66828-1/RMS/DCF



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

RECEIVED

In re application of:

CHEE et al.

Serial No. 09/189,543

Filed: November 10, 1998

For: DECODING OF ARRAY SENSORS
WITH MICROSPHERES

) Examiner: Marschel, A.

) Group Art Unit: 1631

DEC 29 2000

TECH CENTER 1600/2800

#19

Plunkett
116101

CERTIFICATE OF MAILING

I hereby certify that this correspondence, including listed enclosures, is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231 on:

Dated:

Signed:

12.29.00

Christine P. Peters

Christine P. Peters

INFORMATION DISCLOSURE STATEMENT
AND STATEMENT OF RELATEDNESS

Assistant Commissioner
for Patents
Washington, DC 20231

Sir:

In satisfaction of the duty of disclosure under 37 C.F.R. § 1.56, and in accordance with the provisions of 37 C.F.R. §§ 1.97 and 1.98, Applicant wishes to draw the attention of the U.S. Patent and Trademark Office to the references cited on the accompanying form PTO-1449. Copies of the references are enclosed.

With respect to patent applications, the applicants point out their duty under M.P.E.P. §2001.06(b) to disclose relevant patent applications of which they are aware. To this end, the applicants draw the Examiner's attention to the following patent applications;

1. U.S.S.N. 09/344,526, filed June 24, 1999 entitled "Decoding of Array Sensors with Microspheres," which claims priority to the instant application and U.S.S.N. 60/090, 473, filed June 24, 1998 entitled "Encoding and Decoding Fiber Optic Sensors with Microspheres."
2. U.S.S.N. 09/287,573, filed April 6, 1999 entitled "Self-Encoding Sensor with Microspheres," which is a continuation of 08/944, 850, filed October 6, 1997 entitled Self- Encoding Fiber Optic Senor."
3. U.S.S.N. 09/315,584, filed June 20, 1999 entitled "Encoding and Decoding of Array Sensors Utilizing Nanocrystals."
4. U.S.S.N. 09/256,943, filed February 24, 1999 entitled "Composite Array Utilizing Microspheres," which claims priority to U.S.S.N. 60/113,968 filed December 28, 1998.
5. U.S.S.N. 09/151,877, filed September 11, 1998, entitled "Target Analyte Sensors Utilizing Microspheres," Which is a divisional of U.S.S.N. 08/818,199, filed March 14, 1997, entitled "Fiber Optic Sensor with Encoded Microspheres."
6. U.S.S.N. 08/851,203, filed May 5, 1997, entitled "Fiber Optic Biosensor for Selectively Detecting Oligonucleotide Species in a Mixed Fluid Sample."

None of the foregoing references are believed to disclose the invention as claimed.
Nothing herein shall constitute an admission concerning the contents of any of the cited

Serial No.: 09/189,543
Filed: November 10, 1998



RECEIVED

DEC 29 2000

TECH CENTER 1600/2900

references, nor shall the inclusion of a reference herein be considered an admission that the reference constitutes prior art against the invention claimed in the above-identified application. Submission of the present document shall not be construed as an admission that a search has been made or that better art does not exist.

The Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 06-1300 (Our Order No. A-66828-1/RMS/DCF).

Respectfully submitted,

FLEHR, HOHBACH, TEST,
ALBRITTON & HERBERT

Dated: December 19, 2000

David C. Foster
David C. Foster
Reg. No. 44,685

Four Embarcadero Center
Suite 3400
San Francisco, CA 94111-4187
Telephone: (415) 781-1989
1037715

44-66828
Priority date 6/24/98

BIG ILLUMINA IDS REFS. (as of 12/1/00)
these do not apply to 68851, 68717, or 68396 family of cases)

US PATENTS

— 4,200,110	4/1980	Peterson et al.
✓ 4,499,052	2/1985	Fulwyler
— 4,682,895	7/1987	Costello
4,785,814	11/1988	Kane
✓ 4,822,746	4/1989	Walt
— 4,824,789	4/1989	Yafuso et al.
— 4,999,306	3/1991	Yafuso et al.
✓ 5,002,867	3/1991	Macevicz
✓ 5,028,545	7/1991	Soini
✓ 5,105,305	4/1992	Betzig et al.
✓ 5,114,864	5/1992	Walt
✓ 5,132,242	7/1992	Cheung
✓ 5,143,853	9/1992	Walt
✓ 5,194,300	3/1993	Cheung
✓ 5,244,636	9/1993	Walt et al.
✓ 5,244,813	9/1993	Walt et al.
✓ 5,250,264	10/1993	Walt et al.
✓ 5,252,494	10/1993	Walt
✓ 5,254,477	10/1993	Walt
✓ 5,298,741	3/1994	Walt et al.
— 5,302,509	4/1994	Cheeseman
✓ 5,320,814	6/1994	Walt et al.
— 5,357,590	10/1994	Auracher
✓ 5,380,489	1/1995	Sutton et al.
— 5,435,724	7/1995	Goodman et al.
— 5,481,629	1/1996	Tabuchi
✓ 5,494,798	2/1996	Gerdt et al.
✓ 5,496,997	3/1996	Pope
✓ 5,512,490	4/1996	Walt et al.
✓ 5,516,635	5/1996	Ekins et al.
✓ 5,565,324	10/1996	Still et al.
✓ 5,573,909	11/1996	Singer et al.
— 5,575,849	11/1996	Honda et al.
✓ 5,633,972	5/1997	Walt et al.
✓ 5,639,603	6/1997	Dower et al.
— 5,656,241	8/1997	Seifert et al.
✓ 5,690,894	11/1997	Pinkel et al.
5,814,524	10/1998	Walt
— 5,840,256	11/1998	Demers et al.
✓ 5,854,684	12/1998	Stabile et al.
✓ 5,888,723	3/1999	Sutton et al.

ok by DCF
EXcl
no fee

✓ 5,900,481 5/1999 Lough et al.
- 6,023,540 2/2000 Walt et al.

SN 08/851,203 Walt 1449
SN 08/944,850 (67207) Walt 1449
SN 09/033,462 (67208) Walt 1449

FOREIGN PATENTS

✓ 0478 319 4/1992 EP
✓ 0723 146 7/1996 EP
✓ 0392 546 10/1990 EP
✓ 0269 764 6/1988 EP
✓ 89/11101 11/1989 PCT
✓ 93/02360 2/1993 PCT
- 96/03212 2/1996 PCT
- 97/14928 4/1997 PCT
✓ 97/14028 4/1997 PCT
✓ 97/40385 10/1997 PCT
98/50782 11/1998 PCT
✓ 98/40726 9/1998 PCT
✓ 98/53093 11/1998 PCT
✓ 98/53300 11/1998 PCT
✓ 99/67414 12/1999 PCT
99/18434 4/1999 PCT
n099/60170 11/1999 PCT
- 00/13004 3/2000 PCT
- 00/16101 3/2000 PCT
n0 00/48000 9/2000 PCT

ARTICLES

✓ Abel et al., "Fiber-Optic Evanescent Wave Biosensor for the Detection of Oligonucleotides," Anal. Chem. 68:2905-2912 (1996).

✓ Anonymous, "Microsphere Selection Guide," Bang Laboratories, (Fisher, In) September 1998.

✓ Anonymous, "Fluorescent Microspheres," Tech. Note 19, Bang Laboratories, (Fishers, In) February 1997.

✓ Bangs, L.B., "Immunological Applications of Microspheres," The Latex Course, Bangs Laboratories (Carmel, IN) April 1996.

✓ Barnard et al., "A Fibre-Optic Chemical Sensor with Discrete Sensing Sites," Nature,

353:338-340 (September 1991).

Chen et al., "A Microsphere-Based Assay for Multiplexed Single Nucleotide Polymorphism Analysis Using Single Base Chain Extension," *Genome Research*, 10(4):549-557 (2000).

Czarnik, "Illuminating the SNP Genomic Code," *Modern Drug Discovery*, 1(2): 49-55 (1998).

✓ Drmanac, R. et al., "Sequencing by Oligonucleotide Hybridization: A Promising Framework in Decoding of the Genome Program," *The First International Conference on Electrophoresis, Supercomputing and the Human Genome, Proceeding os th April 10-13, 1990 Conference at Florida State University*. Ed. C. Cantor and H. Lim.

✓ Drmanac, R. et al., "Prospects for a Miniaturized, Simplified and Frugal Human Genome Project," *Scientia Yugoslavica*, 16(1-2):97-107 (1990).

✓ Drmanac, R. et al., "Sequencing by Hybridization (SBH) with Oligonucleotide Probes as an Integral Approach for the Analysis of Complex Genomes," *International Journal of Genome Research*, 1(1):59-79 (1992).

✓ Drmanac, R. et al., "Sequencing by Hybridization," *Automated DNA Sequencing and Analysis*, ed. M. Adams, C. Fields and J. Venter. (1994).

— Ferguson et al., "A Fiber-Optic DNA Biosensor Microarray for the Analysis of Gene Expression," *Nature Biotechnology*, 14:1681-1684 (1996).

✓ Fuh et al., "Single Fibre Optic Fluorescence pH Probe," *Analyst*, 112:1159-1163 (1987).

— Healey et al., "Improved Fiber-Optic Chemical Sensor for Penicillin," *Anal. Chem.* 67(24):4471-4476 (1995).

— Healey et al., "Development of a Penicillin Biosensor Using a Single Optical Imaging Fiber," *SPIE Proc.* 2388:568-573 (1995).

✓ Healey et al., "Fiberoptic DNA Sensor Array Capable of Detecting Point Mutations," *Analytical Biochemistry*, 251:270-279 (1997).

✓ Hirschfeld et al., "Laser-Fiber-Optic "Optrode" for Real Time In Vivo Blood Carbon Dioxide Level Monitoring," *Journal of Lightwave Technology*, LT-5(7):1027-1033 (1987).

✓ Iannone et al., "Multiplexed Single Nucleotide Polymorphism Genotyping by Oligonucleotide Ligation and Flow Cytometry," *Cytometry*, 39:131-140 (2000).

Michael et al., "Making Sensors out of Disarray: Optical Sensor Microarrays," Proc. SPIE, 3270: 34-41 (1998).

Michael et al., "Randomly Ordered Addressable High-Density Optical Sensor Arrays," Anal. Chem. 70(7): 1242-1248 (April 1998).

— Michael et al., "Fabrication of Micro- and Nanostructures Using Optical Imaging Fibers and their Use as Chemical Sensors," Proc. 3rd Int'l Symp., Microstructures and Microfabricated Systems, ed. P.J. Hesketh, et al., v. 17-5, Electrochem. Soc., 152-157 (Aug. 1997).

✓ Mignani, et al., "In-Vivo Biomedical Monitoring by Fiber-Optic Systems," Journal of Lightwave Technology, 13(7): 1396-1406 (1995).

— Pantano et al., "Ordered Nanowell Arrays," Chem. Mater., 8(12): 2832-2835 (1996).

✓ Peterson et al., "Fiber-Optic Sensors for Biomedical Applications," Science, 13:123-127 (1984).

✓ Peterson, J. et al., "Fiber Optic pH Probe for Physiological Use," Anal. Chem., 52:864-869 (1980).

✓ Piunno et al., "Fiber-Optic DNA Sensor for Fluorometric Nucleic Acid Determination," Anal. Chem., 67:2635-2643 (1995).

✓ Pope, E. "Fiber Optic Chemical Microsensors Employing Optically Active Silica Microspheres," SPIE, 2388:245-256 (1995).

✓ Strachan et al., "A Rapid General Method for the Identification of PCR Products Using a Fibre-Optic Biosensor and its Application to the Detection of Listeria," Letters in Applied Microbiology, 21:5-9 (1995).

— Walt, D. "Fiber Optic Imaging Sensors," Accounts of Chemical Research, 31(5): 267-278 (1998).

— Walt, "Fiber-Optic Sensors for Continuous Clinical Monitoring," Proc. IEEE, 80(6): 903-911 (1992).